DEPARTMENT OF THE NAVY
FY 1999 BIENNIAL BUDGET ESTIMATES

JUSTIFICATION OF ESTIMATES
SEPTEMBER 1997

AIRCRAFT PROCUREMENT, NAVY
MULTIYEAR EXHIBITS

Department of the Navy

FY 1999 Procurement Program

Multiyear exhibits for Aircraft Procurement, Navy

P-1 line item	**Program**
1	AV-8B
4	F/A-18E/F
9	E-2C
13	T-45

Date: Sep-97

Exhibit MYP-1, Multiyear Procurement Criteria

Program AV-8B

1. Multiyear Procurement Description:

The proposed multiyear procurement covers the period from FY99 till program complete in FY01. The procurement quantities follow as: FY99=12 A/C, FY00=12 A/C, & FY01=9 A/C. This MYP is fully funded across the three years from FY99 to FY01. However, in the event of a cancellation decision being made at any point, a portion of a given year's aircraft may not be able to be completed and delivered without additional funding. In the event of cancellation, funding that would be required to complete the quantity of aircraft ordered each year is summarized below (M$).

FY99	**FY00**	**FY01**
45	30	0

This MYP is structured with no additional EOQ funding, as all EOQ funding is included in the annual dollar amounts provided in the multiyear. This means termination liability (TL) is wholly contained in the annual funding amounts of the MYP. There are no additional nonrecurring costs as the contractor requires no new significant tooling to produce the aircraft. Contract type will continue to be firm-fixed price, with salient features being an economic price adjustment to cover additional contractor risk over this MYP, acts of God clause, business base fluctuations, material escalation, and foreign exchange rate protection. The structure of this MYP requires no EOQ funding in advance, and because it is a FFP contract, the govt. is not subjected to any risk if the contractor fails to internally achieve the savings (contractor is assuming all of the EOQ savings risk). Therefore, the only government risk is if the government were to cancel the MYP in midstream, as there is a cancellation ceiling penalty which would more than offset the MYP savings. This ceiling requires USD (Comptroller) approval to the general policy which allows inclusion of recurring costs in an unfunded cancellation clause. This MYP structure also means that the government has no requirement to know EOQ specific items the contractor is funding since the government is not providing advance EOQ funding. The key information for the government is the cancellation ceiling, which is estimated in the following exhibits. The unfunded cancellation ceiling includes recurring costs, which will also have to be negotiated in the MYP contract and are estimated to be between $30 and $45 million.

Benefit to the Government.

2.

a. Savings and Cost Avoidance:

The proposed Multiyear savings come from the following areas (based on Boeing (MDA) input), and have been reviewed by the Naval Center for Cost Analysis (NCCA) for the T-45 Program. NCCA found the estimating methodologies utilized by Boeing as reasonable, and consistent with AV-8B and other aircraft multiyear savings as reflected in the OSD Cost Analysis Improvement Group (CAIG) data base. All savings are derived from a savings on recurring costs only as a result of either procuring or building the aircraft in Economic Order quantities.

MDA In-House	MYP Savings

Overall this type of savings results from the increased efficiency of a stable labor force

- Integrated Product Development 0.9%

  5% Reduction in Engineering (primarily design) staff in order to sustain the production line. As production quantities will be known for 3 years, hours on certain taskings, such as preparing drawings, will be reduced.

  14% Reduction in labor hours for the Tool Design/Manufacturing processes.This % is based on previous AV-8B FY 89-91 experience. Fewer hours would be required of Mfg. Engineers/Mfg. planners under a MYP as manufacturing changes would be issued fewer times as building components and assemblies would be EOQ vice annual quantities. Stable (under contract) EOQ quantities and configuration are required.

- Manufacturing 0.6%

  1.0% Reduction in Setups. Set-up is a small % of Mfg. costs, and Boeing anticipates a 40% reduction in set-ups. This will equate to a 1% savings in touch labor.
  14% Reduction in Sustaining Tool/Plan as a result of fewer setups/stability in production. This 14% is also based on previous AV-8B MYP experience and the statement in IPD above applies.

- Supplier Management & Procurement	0.1%
6.0% Staff reduction from stable configuration	

Procurement
Overall, these savings are attributable to the purchases of items for more than one year

- 8.0% Reduction in Material, including forgings, castings, raw material as a result of procuring EOQ quantities from vendors	0.3%
- 4.0% Reduction in CFE/Subcontract. This % was obtained by quotes from the 4 largest vendors, and applying savings across all vendors.	2.0%
- 5.0% Reduction from British Aerospace (BAE) based on quote from BAE	2.6%
	6.5%

b. Impact on Industrial Base:
None

Stability of Requirement.

3. The Department of the Navy 1997 Posture Statement (endorsed by SecNav, CNO, and CMC) revalidated the remanufacture of 72 Day Attack AV-8B's. The Posture Statement demonstrates the Department of the Navy's committtment to properly fund this weapons system to the quantities proposed in the multi-year plan.

   The AV-8B has been identified by the USMC as the platform to continue to perform the closeair support mission requirements until Joint Strike Fighter (JSF) is established in the USMC inventory. Therefore, inventory objectibve and planned production rates are expected to remain stable throught the term of the proposed multiyear procurement and remanufacture program.

Stability of Funding.

4. The Department of the Navy has shown its committment to support the AV-8B multiyear plan by fully funding the requirements during the PR-99 process. This comittment was reaffirmed by top level Navy leadership through its support in the final SPP. In addition, ASN(RDA) is in agreement with the multi-year for AV-8B. Funding for the AV-8B program has been stable since 1992.

Stable Configuration.

5. The AV-8B aircraft is a mature plane that is currently over half way through its procurement life. No major ECPs are planned during the multi-year profile.

Degree of Cost Confidence.

6. The following exhibits have been put together using the Naval Air Systems Command Cost Analysis budget model. Multiyear procurement savings of 6.5% (annual off of the Airframe/CFE) were developed utilizing contractor Boeing (MDA) input. The assumptions, methodology, and savings utilized by Boeing for the T-45 Program were independently reviewed by the NCCA, and were deemed to be reasonable by NCCA. The AV-8B Programis very similar to the T-45 program, therefore, the assumptions, methodology, and savings utilized by Boeing for the AV-8B program are assumed to be reasonable as well.

Degree of Confidence in Contractor Capability.

7. The Government is confident that Boeing (McDonnell Douglas) will be able to support and deliver the proposed Aircraft procurement schedule, based on past performance with McDonnell Douglas multi-year scenarios (FY 88-91).

Risk Factors.

8.

Category	Risk	Explanation
Requirement Stability	Low	Based on comments above
Funding Stability	Low	Based on comments above
Configuration Stability	Low	Based on comments above
Cost Confidence	Medium	Based on comments above

Multiyear Summary.

9.

	ANNUAL CONTRACTS	MYP ALTERNATE
	33	33
Quantity	576.3	539.0
Total Contract Price		*
Unfunded Cancellation Ceiling		37.3
$ Cost Avoidance Over Annual		6.47%
% Cost Avoidance Over Annual		

*Each fiscal year is fully funded unless there is a cancellation which would result in additional funds being required to fully fund ordered quantities.

Exhibit MYP-2, Total Program Funding Plan				Date Sep-97							
Appropriation/Budget Activity Aircraft Procurement, Navy/APN-3, Attack Aircraft				P-1 Line Item Nomenclature AV-8B MYP							
	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY2003	FY2004	FY2005	FY2006	FY2007	Total
Annual Procurement											
Proc Qty		12	12	9	0	0	0	0	0	0	33
Gross Cost		337.8	338.8	292.6							969.2
Less Adv Proc		18.9	19.4	15.0							53.3
Net Proc (=P-1)		318.9	319.4	277.6							915.9
Plus Adv Proc	18.9	19.4	15.0	0.0							53.3
Weapon System	18.9	338.3	334.4	277.6							969.2
Mutiyear Proc											
Proc Qty		12	12	9	0	0	0	0	0	0	33
Gross Cost (P-1)		324.6	325.5	281.8							931.9
Less Adv Proc		18.9	19.4	15.0							53.3
Net Proc		305.7	306.1	266.8							878.6
Plus Adv Proc	18.9	19.4	15.0	0.0							53.3
Weapon System	18.9	325.1	321.1	266.8							931.9
Multiyear Savings ($)	0.0	13.2	13.3	10.8							37.3
OUTLAYS											
Annual	3.4	66.3	162.7	261.6	234.9	150.4	59.3	22.0	8.6	0.0	969.2
Multiyear	3.1	58.5	156.9	233.8	220.6	151.9	74.4	27.5	5.2	0.0	931.9
Savings	0.3	7.8	5.8	27.8	14.3	-1.5	-15.1	-5.5	3.4	0.0	37.3

Remarks

NOTE: Each fiscal year is fully funded unless there is a cancellation which would result in additional funds being required to fully fund ordered quantities. See MYP-1 for further explanation.

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Exhibit MYP-3, Contract Funding Plan				Date Sep-97							
Appropriation/Budget Activity Aircraft Procurement, Navy/APN-3, Attack Aircraft				P-1 Line Item Nomenclature AV-8B MYP							
	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY2003	FY2004	FY2005	FY2006	FY2007	Total
Annual Procurement											
Proc Qty		12	12	9	0	0	0	0	0	0	33
Gross Cost		203.0	206.3	167.0							576.3
Less Adv Proc		8.9	9.4	9.3							27.6
Net Proc (=P-1)		194.1	196.9	157.7							548.7
Plus Adv Proc	8.9	9.4	9.3	0.0							27.6
Contract Price	8.9	203.5	206.2	157.7							576.3
Mutiyear Proc											
Proc Qty		12	12	9	0	0	0	0	0	0	33
Gross Cost (P-1)		189.8	193.0	156.2							539.0
Less Adv Proc		8.9	9.4	9.3							27.6
Net Proc		180.9	183.6	146.9							511.4
Plus Adv Proc	8.9	9.4	9.3	0.0							27.6
Contract Price	8.9	190.3	192.9	146.9							539.0
Multiyear Savings ($)	0.0	13.2	13.3	10.8							37.3
Multiyear Savings (%)											6.5%
OUTLAYS											
Annual	1.6	39.2	97.9	156.8	140.3	87.9	34.7	13.0	4.9	0.0	576.3
Multiyear	1.3	31.4	92.1	129.0	126.0	89.4	49.8	18.5	1.5	0.0	539.0
Savings	0.3	7.8	5.8	27.8	14.3	-1.5	-15.1	-5.5	3.4	0.0	37.3

NOTE: Each fiscal year is fully funded unless there is a cancellation which would result in additional funds being required to fully fund ordered quantities. See MYP-1 for further explanation.

Exhibit MYP-4, Present Value Analysis				Date Sep-97							
Appropriation/Budget Activity Aircraft Procurement, Navy/APN-3, Attack Aircraft				P-1 Line Item Nomenclature AV-8B MYP							
	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY2003	FY2004	FY2005	FY2006	FY2007	Total
Annual Proposal											
Then Year Cost	1.6	39.2	97.9	156.8	140.3	87.9	34.7	13.0	4.9	0.0	576.3
Constant Year Cost	1.6	38.4	95.2	151.3	134.1	83.4	33.0	12.3	4.6	0.0	553.9
Present Value	1.6	37.2	89.1	137.0	117.6	70.7	27.1	9.8	3.5	0.0	493.6
Mutiyear Proc											
Then Year Cost	1.3	31.4	92.1	129.0	126.0	89.4	49.8	18.5	1.5	0.0	539.0
Constant Year Cost	1.3	30.8	89.6	124.2	120.6	85.5	47.3	17.4	1.4	0.0	518.1
Present Value	1.3	29.8	83.9	112.5	105.7	72.5	38.8	13.8	1.1	0.0	459.4
Difference											
Then Year Cost	0.3	7.8	5.8	27.8	14.3	-1.5	-15.1	-5.5	3.4	0.0	37.3
Constant Year Cost	0.3	7.6	5.6	27.1	13.5	-2.1	-14.3	-5.1	3.2	0.0	35.8
Present Value	0.3	7.4	5.2	24.5	11.9	-1.8	-11.7	-4.0	2.4	0.0	34.2
Multiyear Savings (%)											6.5%
Multiyear Savings ($)	0.3	7.8	5.8	27.8	14.3	-1.5	-15.1	-5.5	3.4	0.0	37.3
.											

Remarks

Date: September 1997

Exhibit MYP-1, Multiyear Procurement Criteria

Program: F/A-18E/F (FIGHTER) HORNET

1. Multiyear Procurement Description:

This proposed multiyear procurement covers the purchase of 222 F/A-18E/F aircraft in FY 2000 through FY 2004 under a single, five year fixed price incentive fee type contract. These aircraft constitute the first five years of full rate production (FRP) of the F/A-18E/F, following three years of low rate initial production (LRIP) (FY 1997-1999) during which 62 F/A-18E/F aircraft will be produced. This MYP strategy has been structured to achieve significant savings ($686M), while avoiding the normal early years' drain on obligation authority for up front investment and providing unprecedented quantity flexibility for emergent requirements. This is accomplished by using current year funds to cover existing contractual liabilities in the event of contract termination. This MYP is fully funded across the five years from FY00 to FY04, however in the event of a cancellation decision being made at any point a portion of a given year's aircraft may not be able to be completed and delivered without additional funding - (e.g., A cancellation made once the FY01 quantity of 42 aircraft has been placed and before the FY02 order has been made, the maximum cost to complete the FY01 order of 42 is $209M. The FY00 order of 36 aircraft would already be fully funded at that time.) Funding that would be required to complete the full quantity of aircraft ordered each year is summarized below (M$).

FY00	FY01	FY02	FY03	FY04
232	209	160	115	0

The usual multi-year up front investment costs for (1) non-recurring start-up expenses and producibility savings initiatives (NR) and (2) economic order quantities (EOQ) will be amortized across the entire FY00-FY04 procurement quantity pursuant to Federal Acquisition Regulation (FAR) Part 17. Along with costs for long lead efforts customarily funded by AP in a single year procurement environment, the unamortized portions of NR and EOQ will be separately identified and funded on a ceiling price basis within the contract. The funds so allocated will be obtained by fully funding the majority, but not all, of the current aircraft with the current year funds. The remaining aircraft will be in AAC/Option status throughout the fiscal year, funded only to the required termination liability level to ensure delivery schedules will be met. When the follow-on year's funds become available, that follow-on year's funds will be obligated to cover the cancellation/termination potential liability and the original year's funding can be freed up to fully fund the AAC/Option exercise aircraft. Should that follow-on year's funding never materialize, the government would have to provide additional funding to allow both the AAC/Option aircraft completion and the cancellation liability coverage or terminate those AAC/Option aircraft. The exact quantity of aircraft to be put into AAC/Option status each year will depend upon the exact negotiated contract prices, but it will decrease year by year pursuant to the MYP amortization schedule.

The other unique feature of our MYP is the allowance for quantity flexibility. The government will have the right to vary the quantity by +/- 6 aircraft in any year (after the first year) at the time of initial funding for that year. Any aircraft deletions will erode some of the savings due to the reduction in economies of scale and the amortization of NR efforts which will have already occurred, but this provision provides unprecedented ability for the government to address emergency funding demands without totally forgoing the MYP savings. The ability to increase quantities also benefits the government by providing an ability to procure emergent requirements for more aircraft, including foreign military sales customers, again without breaking the MYP or disturbing the savings already established in the baseline.

2. Benefit to the Government:

a. Savings and Cost Avoidance:

Implementation of this proposed multiyear procurement will yield significant opportunity for cost avoidance through the term of the contract. Specifically, total savings/cost avoidance for fiscal years 2000 through 2004 attributable to this multiyear strategy are estimated at $686 million (TY$).

Cost savings will be generated as a result of investment in program specific and capital equipment and processes that would not meet the contractor's Internal Rate of Return objectives under a single year procurement of 36 to 48 aircraft and also Economic Order Quantity (EOQ). Some examples of capital investments and process improvement initiatives under consideration by the prime contractor and subcontractors that can only be accomplished in a multiyear procurement environment include:

- Acquisition of robotic painting equipment for the airframe and airframe assemblies. The use of robotic painting equipment provides a more precise and consistent application of paint to the product when compared to the conventional method of paint application. This will virtually eliminate rework caused by human error during paint application and will reduce the total work-hours needed to arrive at a usable end product. In addition, savings can also be achieved due to a corresponding reduction in the number of quality control/inspection check points that are required with a robotic process. This is one example of robotics initiatives being considered by Boeing and its subcontractors. The contractors are not capable of making this investment under a single year procurement strategy because the estimated per unit savings would not recoup the investment expenses within a single year procurement quantity of between 36 and 48 aircraft.

- An investment in Automated Drilling/Fasteners Systems. All surfaces on the aircraft which are joined by fasteners must have holes drilled and fasteners installed to meet extremely precise specifications for both depth and bore. The use of automated machinery almost eliminates the possibility of inaccurate hole placement, drill depth, and drill bore. The raw material will be placed on a permanently fixed drilling jig that does not allow the material to move or shift until all holes are drilled and fasteners are properly installed. This investment will provide benefit to the government by reducing total time to complete this phase of the production process. It will also reduce the amount of rework required, which will result in materials cost and labor cost savings. This investment is not feasible under a single year procurement scenario as the estimated per unit savings would not recoup the investment expensed within a single year procurement quantity of between 36 and 48 aircraft.

- An investment to convert the two-dimensional product definition database to a three-dimensional solid computer model. This new electronic database on the assembly line allows the worker to see a three dimensional picture of the part being installed and eliminates the use of blueprints on the assembly line. This process will find tolerance build-up problems prior to assembly, thereby reducing assembly costs. It will also allow for more accurate and timely updates to technical blueprints when/if necessitated by safety-related changes to the airframe, future producibility process enhancements, etc. These technical drawing updates will be done in a more cost effective manner than current updates and will facilitate assembly line workers implementing them correctly the first time. Currently, design changes on the assembly line are difficult to institute because of the time needed to print and replace existing blueprints. This revised process will enable engineering changes to be implemented more quickly and at less cost to the government. The contractor is not able to make this type of investment under a single year procurement contract because the payback from the initial $30M investment in this process improvement will not be achieved until 120 units are produced by the contractor.

With these types of investment in the most current state-of-the-art manufacturing technologies at the beginning of full rate production, the government will not only receive the benefits for the aircraft built under this contract, but will also continue to realize lower costs/prices throughout the F/A-18E/F production program.

In addition to the cost savings generated through these investments and initiatives, procuring at economic order quantities will also yield savings. Procuring select components at economic order quantities will reduce costs by reducing the number of production set-ups, reducing administrative costs, receiving price breaks for raw materials and components, and through stability related savings.

- Reducing the number of setups can provide significant savings when producing components or materials with high setup to run ratios and the dollar value of the component is low. Sheet metal procurement and low value castings and forgings are examples of areas in which lower prices can be negotiated with suppliers based on reduced setup costs associated with larger quantity procurements.

- Administrative costs are reduced since there is only one proposal, negotiation, and purchase order instead of a string of five single year procurement actions. These costs are reduced to the prime contractor, since they have only one contract to negotiate with the government vice five. Prime contractor costs will also be reduced as subcontracts at all tiers will only be entered into once. Since some suppliers include proposal preparation and negotiation as a direct charge to the purchase order, there will be a dollar for dollar reduction in these cases and the savings will not get lost in overhead rates.
  Another administrative reduction is realized in production planning. Savings will be gained as production line administrative processes will only be performed once, rather than five times under single year procurement.
- Many electronics components have minimum buy quantities which may not be met under single year procurements, driving up unit costs as the total cost is artificially high. Multiyear procurement quantities will allow the prime contractor and subcontractors at all tiers to exceed minimum order quantities and capture savings on these components.
- Typically suppliers will provide price discounts to lock in business. Given a five year contract, suppliers will have greater total business and greater stability. Therefore, they will be capable of finding innovative processes and be able to justify capital investments necessary to reduce costs. Some of these cost reductions will be passed on to the customer in the form of price reductions. In addition, to these types of process innovations and capital investments, competition is expected to be greater based on larger purchase volumes.

The multiyear contract cited in these exhibits is applicable only to Boeing and its subcontractors on the airframe contract. Specifically, the $686M savings will be noted on the Airframe and CFE Electronics lines of the P-5 exhibit . A breakout of estimated savings follows.

b. Impact on Industrial Base:
Implementation of this proposed multiyear procurement will also yield a favorable impact on the industrial base. The stability afforded by the use of a multiyear procurement will allow the prime contractor to enter into long term agreements with suppliers, at every tier, which provide substantial cost avoidance. Such long term agreements incentivize both the prime and the sub contractors to invest in process improvements such as those previously cited, which will yield long term benefits in terms of product quality and cost. The stability of the prime multiyear contract will also foster improved competition at the sub contractor level, as the offer of a longer term business arrangement will encourage more aggressive pursuit of a contract award. The contractor and subcontractors will be at a reduced risk when implementing production process improvements, facility improvements, tooling design improvements, and fabrication process improvements. The ability for the government and industry to enter into a long-term agreement will allow industry the opportunity to place capital investments upfront, which reduces the overall cost and improves the quality of the F/A-18E/F.

3. Stability of Requirement:

The requirement for the F/A-18E/F was closely scrutinized during recent preparation for review by the Defense Acquisition Board (DAB). The Joint Requirements Oversight Council (JROC) revalidated the F/A-18E/F requirement on 7 March 1997. Additionally, the criticality of F/A-18E/F to the overall DoD aviation plan was emphasized by the Quadrennial Defense Review (QDR), which recommended a quantity of between 548 and 785 F/A-18E/F aircraft at a maximum sustained production rate of 48 per year starting in FY 2002. The recently released Defense Planning Guidance (DPG) reiterates the conclusions of the QDR and sets the total F/A-18E/F quantity at 548 aircraft at a maximum production rate of 48 per year. These documents emphasize the criticality of the F/A-18E/F to overall DoD aviation planning and demonstrates the Department's commitment to properly fund this weapons system to the quantities proposed in the multiyear plan.

The F/A-18F has been identified by the Navy as the platform to take on the mission requirements previously conducted by the F-14 aircraft and will substantially reduce operating and support costs as compared to the F-14. Therefore, inventory objective and planned production rates are expected to remain stable throughout the term of the proposed multiyear procurement and likely through the end of the production phase.

4. Stability of Funding:

The Navy has demonstrated its commitment to a stable funding stream for the F/A-18E/F multiyear through every step of this year's PPBS process. The Navy has shown its commitment to support the F/A-18E/F multiyear plan by fully funding the requirements during the PR-99 process. This commitment was reaffirmed by top level Navy leadership through its support in the final SPP. In addition, the Secretary has reviewed the multiyear proposal and is in agreement with the funding profile provided in this exhibit.

Additionally, the Quadrennial Defense Review and Defense Planning Guidance have fixed the total program and FYDP production quantities as well as the maximum yearly production rate. These documents emphasize the criticality of the F/A-18E/F to overall DoD aviation planning and demonstrates the Department's commitment to properly fund this weapons system to the quantities proposed in the multiyear plan.

5. Stable Configuration:

Currently, the F/A-18E/F aircraft has completed more than 1400 hours of flight testing, successfully completed initial sea trials, and gained approval for the production of 62 LRIP aircraft from FY 1997 through FY 1999. The Engineering and Manufacturing Development (E&MD) contracts are 92.5% and 96.2% complete for the airframe and engine, respectively. At the time of the advanced acquisition contract award for full rate production, scheduled for the first quarter of FY 1999, the F/A-18E/F flight test program will have: completed all Developmental Testing (DT) through DT-IIC and close to one third of TECHEVAL; cleared 100% of the clean aircraft flight test envelope and greater than 50% of weapons testing; completed OT-IIB and initial preparations for OPEVAL.

Although the contractor efforts utilizing this advanced acquisition funding will begin prior to completion of OPEVAL, they will be based on the substantial testing completed to date and the related knowledge of the final aircraft configuration. Also, the vast majority of long lead items are related to structural components, such as bulkheads and brackets. These types of items are typically identified as problem areas early in the flight test process rather than during OPEVAL. Most of the changes derived from OPEVAL will be related to operator interfaces and software performance as opposed to structural changes to the aircraft. These types of items are included later in the production process and are not at issue when discussing advance procurement funding. Also, the prime contractor has stated that since any changes generated during OPEVAL are expected to be minor, they could be made with minimal impact to the production process.

The full rate production decision milestone is scheduled for the second quarter of FY 2000, with the resultant contract to be awarded within weeks of that decision. At that time, OPEVAL will have been completed for close to five months, allowing ample time for the Navy/contractor team to incorporate OPEVAL discrepancies into the final aircraft configuration prior to contract award. Additionally, the contractor and program office have a pre-planned roadmap to incorporate emerging systems into the aircraft during the years covered by the multiyear contract.

In conclusion, the F/A-18E/F will have a stable configuration and a planned roadmap of pre-planned avionics changes prior to the commencement of efforts related to the full rate production contract. The contractors' unrivaled technical success coupled with over 20 years of production and field experience garnered from the F/A-18A/B/C/D program, and the substantial knowledge gained over the first two and a half years of F/A-18E/F flight testing provide a technically mature configuration with which to enter a multiyear procurement.

6. Degree of Cost Confidence:

The NAVAIR Cost Analysis group (AIR 4.2) participated in the validation of the contractor multiyear proposal. This group also prepared the service cost estimate that was independently verified by the Cost Analysis Improvement Group (CAIG) in preparation for the March, 1997 DAB. The CAIG not only validated the F/A-18E/F cost estimate, but also the methodology and assumptions used to derive the estimate.

The cost savings proposed by the contractor were evaluated for reasonableness using other Boeing multiyears as a basis for comparison. Specifically, the projected cost savings of 7.1% was compared favorably to the savings generated by the C-17 multiyear procurement.

Based on the fidelity of the original F/A-18E/F estimate at 1000 aircraft using a single year procurement strategy, the significant production history provided by the F/A-18A/B/C/D program, and the savings achieved by another Boeing multiyear plan, it is reasonable to assume a high degree of confidence in the F/A-18E/F cost estimate and the associated savings from the proposed multiyear procurement.

7. Degree of Confidence in Contractor Capability:

Prime contractors Boeing and General Electric Aircraft Engines (GEAE), as well as major sub contractors Northrop Grumman Corporation (NGC) and Hughes Aircraft Company (HAC), have over 20 years experience in the successful production of F/A-18A/B/C/D aircraft. This industry team has produced seven flight test aircraft which will have flown in excess of 4500 hours and completely exercised the envelope, provided numerous ground test articles, and will have delivered 18 LRIP aircraft, while an additional 44 aircraft will be in production at the time of the full rate production decision milestone.

8. Risk Factors:

CATEGORY	RISK	EXPLANATION
Requirement Stability	Low	JROC ORD revalidation 7 March 1997
Funding Stability	Medium	The Secretary of the Navy has reviewed the multiyear proposal and is in agreement with the funding profile.
Configuration Stability	Medium	Stable configuration process in place; upgrades are planned
Cost Confidence	Medium	Good quality historical/actual data (C/D and EMD) combined with strong corporate commitment

9. Multiyear Summary (list all comparisons from MYP-3 exhibits):

	Annual Contracts	MYP Alternate
Quantity	222	222
Total Airframe Contract Price	9705.962	9020.415
$ Cost Avoidance Over Annual		685.547
% Cost Avoidance Over Annual		7.1%

Exhibit MYP-2, Total Program Funding Plan					Date **SEPTEMBER 1997**							
Appropriation/Budget Activity **Aircraft Procurement Navy/Combat Aircraft, (BA-1)**					P-1 Line Item Nomenclature **F/A-18E/F (FIGHTER) HORNET**							
	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	TOTAL
Annual Procurement												
Proc Qty		36	42	48	48	48						222
Gross Cost		3,157.0	3,246.2	3,360.6	3,304.0	3,302.8						16,370.6
Less PY Adv Proc		-81.7	-92.8	-82.2	-99.7	-95.1						-451.5
Net P-1		3,075.3	3,153.4	3,278.4	3,204.3	3,207.8						15,919.1
Plus CY Adv Proc	81.7	92.8	82.2	99.7	95.1	0.0						451.5
Total Annual Weapon System	81.7	3,168.1	3,235.6	3,378.1	3,299.3	3,207.8						16,370.6
Multiyear Procurement												
Proc Qty		36	42	48	48	48						222
Gross Cost (P-1)		3,001.8	3,094.5	3,214.5	3,179.7	3,194.6						15,685.0
Less PY Adv Proc		-111.7	-20.0	-17.7	-21.4	-20.4						-191.2
Net P-1		2,890.1	3,074.5	3,196.8	3,158.2	3,174.2						15,493.9
Plus CY Adv Proc	111.7	20.0	17.7	21.4	20.4	0.0						191.2
Total Multiyear Weapon System	111.7	2,910.1	3,092.2	3,218.2	3,178.7	3,174.2						15,685.0
Multiyear Savings ($)	-30.0	258.0	143.4	159.9	120.6	33.6						685.5
OUTLAYS												
Annual	11.4	466.9	1,507.0	2,602.2	3,049.6	3,200.0	2,814.1	1,738.8	644.3	237.0	99.4	16,370.6
Multiyear	15.5	440.8	1,413.3	2,449.9	2,901.4	3,074.3	2,728.4	1,701.2	630.0	231.9	98.4	15,685.0
Savings	-4.2	26.1	93.6	152.3	148.2	125.8	85.7	37.6	14.2	5.2	1.0	685.5

Remarks

NOTE: Each fiscal year is fully funded unless there is a cancellation which would result in either decreased quantities being delivered or additional funds being required to fully fund ordered quantities. See MYP-1 for further explanation.

Exhibit MYP-3, Contract Funding Plan					Date **SEPTEMBER 1997**							
Appropriation/Budget Activity **Aircraft Procurement Navy/Combat Aircraft, (BA-1)**					P-1 Line Item Nomenclature **F/A-18E/F (FIGHTER) HORNET - Air Vehicle**							
	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	TOTAL
Annual Procurement												
Proc Qty		36	42	48	48	48						222
Gross Cost		1,825.3	1,945.0	2,030.1	1,972.6	1,932.9						9,706.0
Less PY Adv Proc		-57.7	-72.8	-64.6	-78.3	-74.6						-348.0
Net P-1		1,767.6	1,872.1	1,965.6	1,894.4	1,858.3						9,358.0
Plus CY Adv Proc	57.7	72.8	64.6	78.3	74.6							348.0
Total Annual Weapon System	57.7	1,840.5	1,936.7	2,043.8	1,969.0	1,858.3						9,706.0
Multiyear Procurement												
Proc Qty		36	42	48	48	48						222
Gross Cost		1,670.1	1,793.3	1,884.0	1,848.4	1,824.7						9,020.5
Less PY Adv Proc		-87.7										-87.7
Net P-1		1,582.5	1,793.3	1,884.0	1,848.4	1,824.7						8,932.8
Plus CY Adv Proc	87.7											87.7
Total Multiyear Weapon System	87.7	1,582.5	1,793.3	1,884.0	1,848.4	1,824.7						9,020.5
Multiyear Savings ($)	-30.0	258.0	143.4	159.9	120.6	33.6						685.5
Multiyear Savings (%)												7.1%
OUTLAYS												
Annual	8.0	274.6	886.8	1,542.8	1,825.0	1,910.2	1,663.3	1,020.1	378.3	139.1	57.6	9,706.0
Multiyear	12.2	248.5	793.2	1,390.5	1,676.8	1,784.5	1,577.6	982.5	364.1	133.9	56.6	9,020.4
Savings	-4.2	26.1	93.6	152.3	148.2	125.8	85.7	37.6	14.2	5.2	1.0	685.5

Remarks

NOTE: Each fiscal year is fully funded unless there is a cancellation which would result in either decreased quantities being delivered or additional funds being required to fully fund ordered quantities. See MYP-1 for further explanation.

Exhibit MYP-4, Present Value Analysis							Date **SEPTEMBER 1997**					
Appropriation/Budget Activity **Aircraft Procurement Navy/Combat Aircraft, (BA-1)**							P-1 Line Item Nomenclature **F/A-18E/F (FIGHTER) HORNET - Air Vehicle**					
	FY 1999	FY 2000	FY 2001	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	TOTAL
Annual Proposal												
Then Year Cost	8.0	274.6	886.8	1,542.8	1,825.0	1,910.2	1,663.3	1,020.1	378.3	139.1	57.6	9,706.0
Constant Year Cost	8.0	269.2	863.1	1,485.2	1,726.5	1,770.2	1,518.1	921.6	341.5	125.2	51.3	9,079.8
Present Value	8.0	260.5	808.0	1,345.4	1,513.3	1,501.3	1,245.7	731.7	262.4	93.1	36.9	7,806.3
Multiyear Proc												
Then Year Cost	12.2	248.5	793.2	1,390.5	1,676.8	1,784.5	1,577.6	982.5	364.1	133.9	56.6	9,020.4
Constant Year Cost	12.2	243.9	772.0	1,338.1	1,585.8	1,652.8	1,438.8	887.1	328.5	120.5	50.3	8,430.1
Present Value	12.2	236.0	722.8	1,212.2	1,389.9	1,401.7	1,180.7	704.4	252.4	89.6	36.2	7,238.1
Difference												
Then Year Cost	-4.2	26.1	93.6	152.3	148.2	125.8	85.7	37.6	14.2	5.2	1.0	685.5
Constant Year Cost	-4.2	25.4	91.1	147.1	140.7	117.4	79.3	34.4	13.0	4.7	0.9	649.7
Present Value	-4.2	24.5	85.2	133.2	123.3	99.6	65.0	27.3	10.0	3.5	0.7	568.3
Multiyear Savings ($)												685.5
Multiyear Savings (%)												8.8%

Remarks

Date: September 1997

MYP-1 Exhibit, Multiyear Procurement (MYP) Criteria

Program: E-2C HAWKEYE

1. Multiyear Procurement Description:

This proposed MYP covers the purchase of 22 E-2C airframes starting in FY99 through FY04 under a single six year firm fixed price contract. These 22 airframes buy-out the remaining E-2C inventory requirement. Also, it assumes a Congressional increase of $68M in FY98 with language allowing it to be used for Economic Order Quantity (EOQ). In general, EOQ items include: APS-145 Radar, ALR-73 Passive Detection System (PDS), Rotodome, Identify Friend or Foe system (IFF), landing gear sets, raw material, castings and forgings, and other miscellaneous piece parts.

The MYP for the airframes is fully funded over FY99 through FY04; however, the annual buys are funded on a termination liability basis. In the event the MYP is canceled in a given MYP year, the previous years aircraft would not be completed unless additional funds are provided to complete the previous years production - (e.g., The MYP is canceled in FY00 with no FY00 funds provided, the FY99 aircraft still requires funding in FY00 to complete the production of the aircraft because the FY99 aircraft were funded to termination liability only in FY99.)

2. Benefit to the Government:

Cost Avoidance; Implementation of this MYP will yield approximately $163.1M of cost avoidance savings starting in FY99 through FY04. This equates to 11.1% savings over the current annual airframe budget.

Aircraft Deliveries; The MYP delivers the last E-2C aircraft one year earlier than under the current annual procurement budget.

Parts Obsolescence; The MYP avoids the increased cost of parts obsolescence from year to year by purchasing material in EOQ lots that span the entire 22 aircraft MYP.

Vendor Base; The MYP avoids the requalification process for sub-vendors. Under annual procurement buys, the quantity of aircraft purchased per year has been 3 to 4 aircraft. This is very inefficient for Northrop-Grumman and its vendor base. Currently up to 30% of Northrop-Grumman's vendor base in any one year would cease to do business with Northrop-Grumman due to low quantities. The MYP eliminates this problem by purchasing material in EOQ lots.

3. Stability of Requirement:

The E-2 has been the Navy's primary AEW platform since the mid 1960s and has been in continuous production with the exception of 1994 when there was a production break. The E-2C Operational Requirements Document No. 31-20 was revalidated on 28 April 1994 and Acquisition Decision Memorandum dated 27 October 1994 approved the current production run of 36 aircraft and completes the inventory requirement of 75 Group II aircraft.

4. Stability of Funding:

The Navy has demonstrated its commitment to an E-2C MYP by budgeting the funds necessary to execute the MYP.

5. Stable Configuration:

The configuration for the 22 E-2C MYP aircraft is a basic Group II aircraft that is currently in production with the addition of Cooperative Engagement Capability (CEC). No major configuration changes are planned or required during the MYP.

6. Degree of Cost Confidence:

The NAVAIR Cost Analysis group (AIR 4.2) and Contracting group (AIR 2.0) participated in the validation of Northrop-Grumman's MYP proposal. The cost savings proposed by Northrop-Grumman were evaluated for reasonableness based on the known cost of buying the FY 95/96/97 aircraft quantities in conjunction with the E-2's significant production history. It is reasonable to assume a high degree of confidence in the Northrop-Grumman cost estimate and the associated savings from the proposed MYP.

7. Degree of Confidence in Contractor's Capability:

Northrop-Grumman has been building the E-2 aircraft since the mid 1960s. Historically, 6 Navy aircraft were produced on an annual basis with additional FMS aircraft in various years. The proposed MYP does not place any additional requirements on Northrop-Grumman to produce the remaining 22 aircraft.

8. Risk Factors:

Category	Risk	Explanation
Requirement Stability	Low	ORD revalidated 28 Apr 94, ADM for 36 new aircraft approved 27 Oct 1994.
Funding Stability	Low	Navy committed funding for MYP.
Configuration Stability	Low	No major configuration changes planned or required during MYP.
Cost Confidence	Low	Actual annual procurement cost data combined with strong corporate commitment.

9. Multiyear Summary:

	Annual Contracts	MYP Alternative
Quantity	22	22
Total Airframe Contract Price ($M)	1,473.4	1,310.3
$ Cost Avoidance Over Annual ($M)		163.1
% Cost Avoidance Over Annual		11.1%

Exhibit MYP-2 Total Program Funding Plan								Date	Sep-97					
Aircraft Procurement, Navy/APN-1, E-2C Hawkeye								P-1 Line Item Nomenclature						
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	TOTAL
	Budget Year 1	Budget Year 2	Budget Year 2+1	Budget Year 2+2	Budget Year 2+3	Budget Year 2+4	Budget Year 2+5	Budget Year 2+6	Budget Year 2+7	Budget Year 2+8	Budget Year 2+9	Budget Year 2+10	Budget Year 2+11	
Annual Procurement														
Proc Qty		3	3	3	4	5	4							22
Gross Cost (P-1)	68.0	258.9	267.0	253.5	334.3	428.2	296.4							1906.3
Less PY Adv Proc	0	-19.5	-17.7	-18.1	-24.6	-31.4	-25.6							-136.9
Net Proc (= P-1)	68.0	239.4	249.3	235.4	309.7	396.8	270.8							1769.4
Plus CY Adv Proc	19.5	17.7	18.1	24.6	31.4	25.6	0.0							136.9
Weapon Sys Cost	87.5	257.1	267.4	260.0	341.1	422.4	270.8							1906.3
Multiyear Proc														
Proc Qty		3	3	3	4	5	4							22
Gross Cost (P-1)	0.0	125.9	264.9	267.5	426.5	421.3	237.1							1743.2
Less PY Adv Proc		-34.8	-55.5	-83.2	-141.8	-172.1	-11.1							-498.5
Net Proc (=P-1)	0.0	91.0	209.4	184.4	284.7	249.2	226.0							1244.7
Advance Procurement														
AP for FY99	34.8													34.8
AP for FY00	8.9	46.6												55.5
AP for FY01	13.7	28.8	40.7											83.2
AP for FY02	16.4	34.5	32.5	58.4										141.8
AP for FY03	13.7	28.8	29.5	37.2	62.9									172.1
AP for FY04	0.0	0.0	0.0	0.0	0.0	11.1								11.1
Plus CY Adv Proc	87.5	138.7	102.7	95.6	62.9	11.1								498.5
Weapon Sys Cost	87.5	229.7	312.0	280.0	347.6	260.4	226.0							1743.2
Multiyear Savings ($)	0.0	27.3	-44.7	-19.9	-6.5	162.1	44.8							163.1
OUTLAYS														
Annual	15.8	71.1	150.7	220.6	261.4	307.7	335.7	281.5	166.7	62.2	24.5	8.4	0.0	1906.3
Multiyear	15.8	66.2	151.0	227.6	279.9	291.6	287.3	217.1	132.2	50.0	17.6	7.0	0.0	1743.2
Savings	0.0	4.9	-0.3	-7.0	-18.5	16.2	48.4	64.5	34.5	12.2	6.9	1.4	0.0	163.1

Remarks This exhibit shows funding of termination liability

FY98 funding assumes $68M Congressional Plus-up.
Does not include plant shutdown costs

Exhibit MYP-3 Contract Funding Plan								Date	Sep-97					
Aircraft Procurement, Navy/APN-1, E-2C Hawkeye								P-1 Line Item Nomenclature						
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	TOTAL
	Budget Year 1	Budget Year 2	Budget Year 2+1	Budget Year 2+2	Budget Year 2+	Budget Year 2+4	Budget Year 2+5	Budget Year 2+6	Budget Year 2+7	Budget Year 2+8	Budget Year 2+9	Budget Year 2+10	Budget Year 2+11	
Annual Procurement														
Proc Qty		3	3	3	4	5	4							22
Gross Cost (P-1 Gross)	68.0	207.7	201.1	204.2	261.8	325.9	204.7							1473.4
Less PY Adv Proc	0.0	-12.2	-9.7	-9.9	-13.9	-17.4	-14.5							-77.6
Net Proc (= P-1 Net)	68.0	195.5	191.4	194.3	247.9	308.5	190.2							1395.8
Plus CY Adv Proc	12.2	9.7	9.9	13.9	17.4	14.5								77.6
Weapon Sys Cost	80.2	205.2	201.3	208.2	265.3	323.0	190.2							1473.4
Multiyear Proc														
Proc Qty		3	3	3	4	5	4							22
Gross Cost (P-1 Gross)	0	74.7	199.0	218.2	354.0	319.0	145.4							1310.3
Less PY Adv Proc	0.0	-27.5	-47.5	-75	-131.1	-158.1	0							-439.2
Net Proc (= P-1 Net)	0	47.2	151.5	143.2	222.9	160.9	145.4							871.1
Advance Procurement														
AP for FY99	27.5													27.5
AP for FY00	8.9	38.6												47.5
AP for FY01	13.7	28.8	32.5											75.0
AP for FY02	16.4	34.5	32.5	47.7										131.1
AP for FY03	13.7	28.8	29.5	37.2	48.9									158.1
AP for FY04	0	0.0	0.0	0.0	0.0	0.0								
Plus CY Total Adv Proc	80.2	130.7	94.5	84.9	48.9	0	0							439.2
Weapon Sys Cost	80.2	177.9	246.0	228.1	271.8	160.9	145.4							1310.3
Multiyear Savings ($)	0.0	27.3	-44.7	-19.9	-6.5	162.1	44.8							163.1
Multiyear Savings (%)														11.1%
OUTLAYS														
	14.4	59.7	121.6	174.0	204.0	240.1	256.5	211.3	122.3	45.6	18.0	5.9	0.0	1473.4
Multiyear	14.4	54.8	121.9	181.1	222.5	224.0	208.1	146.9	87.7	33.4	11.1	4.5	0.0	1310.3
Savings	0.0	4.9	-0.3	-7.0	-18.5	16.2	48.4	64.5	34.5	12.2	6.9	1.4	0.0	163.1

Remarks This exhibit shows funding of termination liability

FY98 funding assumes $68M Congressional Plus-up.
Does not include plant shutdown costs

Exhibit MYP-4 Present Value Analysis								Date	Sep-97						
Aircraft Procurement, Navy/APN-1, E-2C Hawkeye								P-1 Line Item Nomenclature							
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	TOTAL
	Budget Year 1	Budget Year 2	Budget Year 2+1	Budget Year 2+2	Budget Year 2+3	Budget Year 2+4	Budget Year 2+5	Budget Year 2+6	Budget Year 2+7	Budget Year 2+8	Budget Year 2+9	Budget Year 2+10	Budget Year 2+11	
Annual Proposal														
Then Year Cost	14.4	59.7	121.6	174.0	204.0	240.1	256.5	211.3	122.3	45.6	18.0	5.9	0.0	1473.4
Constant Year Cost	14.7	60.2	121.4	171.5	197.1	226.8	237.7	193.3	110.7	41.2	16.3	5.2	0.0	1396.2
Present Value	15.3	60.2	117.3	160.1	177.7	197.6	200.1	157.2	86.9	31.3	11.9	3.7	0.0	1219.2
Multiyear Proposal														
Then Year Cost	14.4	54.8	121.9	181.1	222.5	224.0	208.1	146.9	87.7	33.4	11.1	4.5	0.0	1310.3
Constant Year Cost	14.7	55.3	121.6	178.1	214.9	212.7	193.9	134.9	79.6	30.2	10.0	4.0	0.0	1249.9
Present Value	15.3	55.3	117.4	166.2	193.8	185.3	163.2	109.6	62.5	22.9	7.3	2.8	0.0	1101.7
Difference														
Then Year Cost	0.0	4.9	-0.3	-7.0	-18.5	16.2	48.4	64.5	34.5	12.2	6.9	1.4	0.0	163.1
Constant Year Cost	0.0	4.9	-0.1	-6.6	-17.9	14.2	43.8	58.4	31.1	11.0	6.3	1.2	0.0	146.3
Present Value	0.0	4.9	-0.1	-6.2	-16.1	12.3	36.9	47.5	24.5	8.4	4.6	0.9	0.0	117.5
Multiyear Savings ($)	0.0	4.9	-0.3	-7.0	-18.5	16.2	48.4	64.5	34.5	12.2	6.9	1.4	0.0	163.1

Remarks

Present value analysis will be calculated in accordance with DoD Instruction 7041.3

Date: September-97

Exhibit MYP-1, Multiyear Procurement Criteria

Program T-45TS

1. Multiyear Procurement Description:

The proposed multiyear procurement covers the period from FY99 through program buyout in FY02. The procurement quantities follow are: FY99=15 A/C, FY00=15 A/C, FY01=15 A/C, & FY02 = 16 A/C. This multiyear procurement is structured with no additional EOQ funding, as all EOQ funding is included in the annual dollar amounts provided in the multiyear. This means termination liability (TL) is wholly contained in the annual funding amounts of the MYP. There are also no additional nonrecurring costs as the contractor requires no new significant tooling to produce the aircraft. Advance procurement for the airframe is only required in FY98 for FY99, as the contractor will procure or produce EOQ quantities within the regular annual funding of the MYP budget. Contract type will continue to be firm-fixed price, with salient features being an economic price adjustment to cover additional contractor risk over this MYP, acts of God clause, business base fluctuations, material escalation, and foreign exchange rate protection. The structure of this MYP requires no EOQ funding in advance, and because it is a FFP contract, the govt. is not subjected to any risk if the contractor fails to internally achieve the savings (contractor is assuming all of the EOQ savings risk). Thus this MYP strategy has been structured to achieve significant savings ($46.3M) while avoiding the normal early years' drain on obligation authority for up front investment.

This MYP is fully funded across the four years from FY99 to FY02, however in the event of a cancellation decision being made additional funding would be required to deliver the quantity of planes already contracturally ordered. Funding required to complete the full quantity of aircraft ordered each year is summarized below:

Cancel years 2,3 and 4 of the MYP in Jan 2000: $70M to complete all 15 A/C from FY99 procurement
Cancel years 3,4 of the MYP in Jan 2001: $100M to complete 27 A/C in process from FY99/00 procurement
Cancel year 4 of the MYP in Jan 2002: $50M to complete 27A/C in process from FY00/01 procurement

This MYP structure also means that the government has no requirement to know EOQ specific items the contractor is funding since the government is not providing advance EOQ funding. The key information for the government is the amount to complete currently ordered aircraft in case of cancellation, which is provided above.

2. Benefit to the Government.

a. Savings and Cost Avoidance:
The proposed Multiyear savings come from the following areas (based on Boeing (MDA) input), and have been reviewed by the Naval Center for Cost Analysis (NCCA). NCCA found the estimating methodologies utilized by Boeing as reasonable, and consistent with other aircraft multiyear savings as reflected in the OSD Cost Analysis Improvement (CAIG) data base. All savings are derived from a savings on recurring costs only as a result of either procuring or building the aircraft in Economic Order quantities.

Boeing in-house	MYP Savings
Overall, this type of savings results from the increased efficiency of a stable labor force	
- Integrated Product Development	1.0%

6.5% Reduction in Engineering (primarily design) staff in order to sustain the production line. As production quantities will be known for 4 years, hours on certain taskings, such as preparing drawings, will be reduced.

14% Reduction in labor hours for the Tool Design/Manufacturing processes. This % is based on previous AV-8B FY89-91 MYP experience. Fewer hours would be required of Mfg. Engineers/Mfg. planners under a MYP as manufacturing changes would be issued fewer times as building components and assemblies would be for EOQ vice annual quantities . Stable (under contract) EOQ quantities and configuration are required.

- Manufacturing 0.7%

1.0% Reduction in Setups. Set-up is a small % of Mfg. costs, and Boeing anticipates a 40% reduction in set-ups. This will equate to a 1% savings in touch labor.

14% Reduction in Sustaining Tool/Plan as a result of fewer setups/stability in production. This 14% is also based on AV-8B MYP experience and the statement in IPD above applies.

- Supplier Management & Procurement 0.3%

5.0% Staff reduction due to a requirement to place & monitor fewer orders as a result of EOQ

Procurement

Overall, these savings are attributable to the purchases of items for more than one year

- 8.0% Reduction in Material, including forgings, castings, raw mater 0.4%
as a result of procuring EOQ quantities from vendors

- 4.8% Reduction in CFE/Subcontract. This % was obtained by 0.4%
quotes from the 4 largest vendors, and applying savings across all vendors

- 5.4% Reduction from British Aerospace (BAE) based on quote from 2.4%
BAE

5.2%

Cost avoidance is not dependent on a MYP. The annual procurement quantity has been accelerated from the President's Budget and does produce significant cost avoidance because the program no longer buys a low quantity of airplanes of 6 or 7 in FY03, FY04, and FY05.

b. Impact on Industrial Base:
None.

3. Stability of Requirement.
   The requirement for the procurement of T-45's is stable. In addition, the problems associated with the aging and increasingly unreliable T-2's lead to increased stability for the T-45 program.
   The Navy needs the T-45 aircraft in order to maintain a viable program for training naval aviators.
   The Navy will purchase these aircraft whether they are part of a multiyear or a regular annualized procurement, and since there is a stable requirement it only makes sense to realize MYP savings.

4. Stability of Funding.
   Funding for the T-45TS program has been stable since 1992.

5. Stable Configuration.
   The T-45 plane is a mature plane that is currently over halfway through its procurement life.
   The new Cockpit-21 configuration has been extensively tested. This modification was determined by the Navy's Operational Test and Evaluation Force to be both effective and suitable for the training mission. The configuration is considered stable by Naval leadership.

6. Degree of Cost Confidence.
   The following exhibits have been put together using AIR-4.2.2's budget model. Mulityear procurement savings of 5.2% (annual off of the Airframe) were developed utilizing contractor Boeing(MDA) input. The assumptions,methodology, and savings utilized by Boeing were independently reviewed by the NCCA, and were deemed to be reasonable by NCCA.

7. Degree of Confidence in Contractor Capability.
   The Government is confident that Boeing (MDA) will be able to support and deliver the proposed aircraft procurement schedule. This statement is made based on discussions with Boeing's management after reviewing Boeing's past performance. Management is comitted to to ensuring this aircraft meets the delivery schedule, as Boeing is on schedule to overcome previously identified delivery problems by February 1998.

8. Risk Factors.

Category	Risk	Explanation
Requirement Stability	Low	Based on comments above
Funding Stability	Low	Based on comments above
Configuration Stability	Low	Based on comments above
Cost Confidence	Low	Based on comments above, and NCCA review

9. Multiyear Summary.

	ANNUAL CONTRACTS	MYP ALTERNATE
Quantity	61	61
Total Contract Price	889.6	843.3
$ Cost Avoidance Over Annual	46.3	
% Cost Avoidance Over Annual	5.2%	

Exhibit MYP-2, Total Program Funding Plan				Date September-97							
Appropriation/Budget Activity Aircraft Procurement, Navy/APN-3, Trainer Aircraft				P-1 Line Item Nomenclature T-45TS MYP							
	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY2003	FY2004	FY2005	FY2006	FY2007	Total
Annual Procurement											
Proc Qty		15	15	15	16	0	0	0	0	0	61
Gross Cost		312.8	325.4	307.5	321.0						1266.8
Less Adv Proc		6.2	8.0	8.2	8.9						31.3
Net Proc (=P-1)		306.6	317.4	299.4	312.1						1235.5
Plus Adv Proc	6.2	8.0	8.2	8.9	0.0						31.3
Weapon System	6.2	314.6	325.6	308.3	312.1						1260.5
Mutiyear Proc											
Proc Qty		15	15	15	16	0	0	0	0	0	61
Gross Cost (P-1)		301.5	314.0	296.1	309.0						1220.5
Less Adv Proc		6.2	3.0	3.0	3.3						15.5
Net Proc		295.2	311.0	293.0	305.7						1205.0
Plus Adv Proc	6.2	3.0	3.0	3.3	0.0						15.5
Weapon System	6.2	298.2	314.1	296.3	305.7						1220.5
Multiyear Savings ($)	0.0	16.4	11.5	11.9	6.4						46.3
Multiyear Savings (%)											
OUTLAYS											
Annual	1.1	58.4	150.0	255.1	293.4	246.9	167.5	62.1	22.7	9.7	1266.9
Multiyear	2.4	21.8	208.8	315.5	282.6	254.8	108.1	17.7	6.3	2.6	1220.6
Savings	-1.3	36.6	-58.8	-60.4	10.8	-7.9	59.4	44.4	16.4	7.1	46.3

Remarks

NOTE: Each fiscal year is fully funded unless there is a cancellation which would require additional funds to complete ordered quantities.
See MYP-1 for further explanation.

Exhibit MYP-3, Contract Funding Plan				Date September-97							
Appropriation/Budget Activity Aircraft Procurement, Navy/APN-3, Trainer Aircraft				P-1 Line Item Nomenclature T-45TS MYP							
	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY2003	FY2004	FY2005	FY2006	FY2007	Total
Annual Procurement											
Proc Qty		15	15	15	16	0	0	0	0	0	61
Gross Cost		218.3	219.2	220.0	232.0						889.6
Less Adv Proc		3.4	5.0	5.1	5.6						19.2
Net Proc (=P-1)		214.9	214.2	214.9	226.4						870.4
Plus Adv Proc	3.4	5.0	5.1	5.6	0.0						19.2
Contract Price	3.4	219.9	219.3	220.5	226.4						889.6
Mutiyear Proc											
Proc Qty		15	15	15	16	0	0	0	0	0	61
Gross Cost (P-1)		207.0	207.8	208.6	220.0						843.3
Less Adv Proc		3.4	0.0	0.0	0.0						3.4
Net Proc		203.6	207.8	208.6	220.0						839.9
Plus Adv Proc	3.4	0.0	0.0	0.0	0.0						3.4
Contract Price	3.4	203.6	207.8	208.6	220.0						843.3
Multiyear Savings ($)	0.0	16.4	11.5	11.9	6.4						46.3
Multiyear Savings (%)											5.2%
OUTLAYS											
Annual	0.6	40.6	103.1	176.7	205.1	175.6	120.1	44.4	16.3	7.1	889.6
Multiyear	1.7	3.7	162.2	237.1	194.3	183.5	60.8	0.0	0.0	0.0	843.3
Savings	-1.1	36.9	-59.1	-60.4	10.8	-7.9	59.3	44.4	16.3	7.1	46.3

Remarks

NOTE: Each fiscal year is fully funded unless there is a cancellation which would require additional funds to complete ordered quantites.
See MYP-1 for further explanation.

Exhibit MYP-4, Present Value Analysis				Date September-97							
Appropriation/Budget Activity Aircraft Procurement, Navy/APN-3, Trainer Aircraft				P-1 Line Item Nomenclature T-45TS MYP							
	FY 1998	FY 1999	FY 2000	FY 2001	FY 2002	FY2003	FY2004	FY2005	FY2006	FY2007	Total
Annual Proposal											
Then Year Cost	0.6	40.6	103.1	176.7	205.1	175.6	120.1	44.4	16.3	7.1	889.6
Constant Year Cost	0.6	39.7	100.2	170.2	194.3	164.3	111.5	41.2	15.1	6.4	843.5
Present Value	0.6	38.4	93.5	153.5	169.3	138.3	90.7	32.3	11.5	4.7	732.8
Mutiyear Proc											
Then Year Cost	1.7	3.7	162.2	237.1	194.3	183.5	60.8	0.0	0.0	0.0	843.3
Constant Year Cost	1.7	3.7	158.9	228.2	182.5	168.7	55.6	0.0	0.0	0.0	799.3
Present Value	1.7	3.6	148.3	205.8	159.1	142.0	45.3	0.0	0.0	0.0	705.8
Difference											
Then Year Cost	-1.1	36.9	-59.1	-60.4	10.8	-7.9	59.3	44.4	16.3	7.1	46.3
Constant Year Cost	-1.1	36.0	-58.7	-58.0	11.8	-4.4	55.9	41.2	15.1	6.4	44.2
Present Value	-1.1	34.8	-54.8	-52.3	10.2	-3.7	45.4	32.3	11.5	4.7	27.0
Multiyear Savings ($)	-1.1	36.9	-59.1	-60.4	10.8	-7.9	59.3	44.4	16.3	7.1	46.3
Multiyear Savings (%)											5.2%
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Remarks